

# Developing New Brunswick's Stone Resource: a Down-to-earth Approach

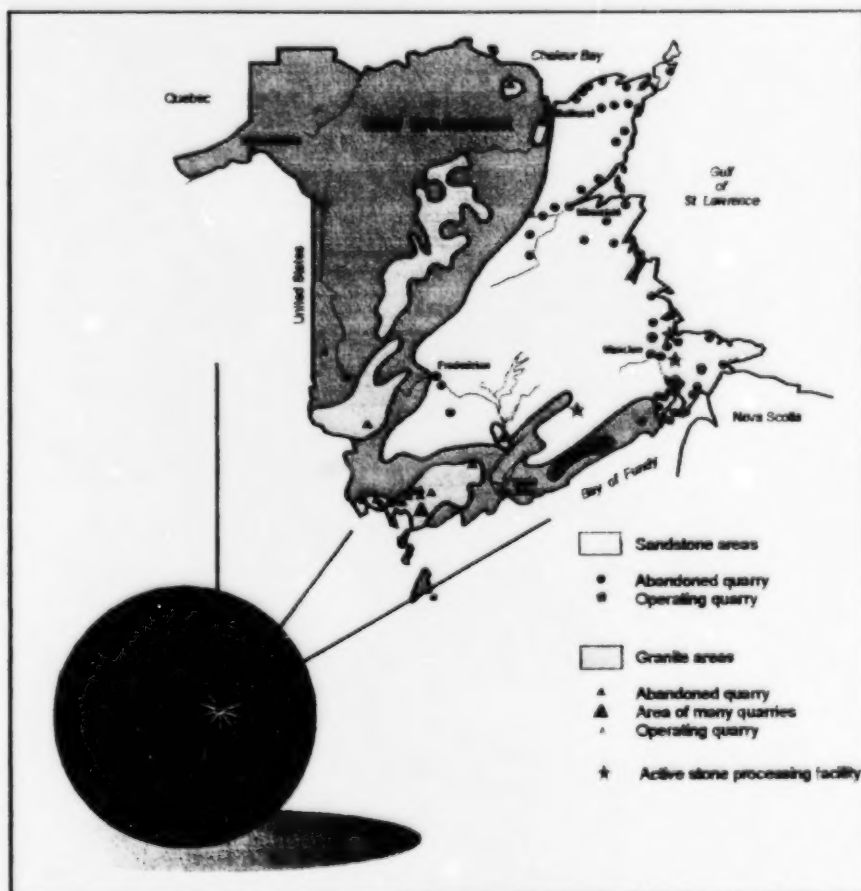
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New Brunswick has an impressive variety of geologic terrains, each offering a diverse assemblage of stone colors and textures. This diversity and an advantageous location (tidewater access to global markets and one-day trucking distance to a regional market of several million people) provide a solid framework for the Province's dimension stone industry.

**Figure 1.** Large blocks of New Brunswick "brownstone" from the Maritime Stone Works Inc.'s Boudreau quarry in the southeastern part of the Province. Stone from this and other sites in the area were worked extensively in the latter part of the 19th Century.

**Figure 2.** Potential stone resources and producers in New Brunswick. Currently, about half a dozen companies work in granite and stone. Only a few quarries in the southern part of the Province are active and generally operate on demand.



## ***The Early Days***

Stone quarrying and working were among the very earliest mining activities undertaken in the Province. The industry, which thrived from the late 1800s to the early 1900s, supplied both rough and fabricated sandstone and granite for buildings, monuments and other structures throughout eastern Canada and the United States (Martin 1990a and 1990b).

Granite, in colours ranging from black to grey and pale to vibrant red, gained an international reputation as a fine monumental stone. However, the province's sandstone resources provided the most visible and widespread testimonial to the New Brunswick stone industry. An American appetite for "brownstone" provided an important catalyst for the sandstone industry as it was incorporated into numerous buildings and related structures throughout the northeastern United States.

In the latter part of the 19<sup>th</sup> century, trade protectionism in the United States led to the implementation of restrictive tariff barriers that had a largely negative impact on stone production in New Brunswick. Tariffs, increasing transportation costs, changes in architectural style, an exodus of skilled labour, and other factors eventually sent many aspiring New Brunswick stone enterprises into the pages of history. Even more destructive was the development of concrete blocks as a cost-effective alternative to stone. This was particularly evident following World War II, when New Brunswick's natural stone resources failed to attract anything more than casual attention.

## ***Revival of Interest***

Over the last decade or so, this sector has shown signs of a qualified comeback. An important stimulus in re-establishing and enhancing the stone industry in New Brunswick is the preference for using "original" stone from former quarry operations for restoration and renovation projects. Processing technology and construction practices have improved and the public has become more aware of natural stone products as a realistic alternative building and decorative material. Recent architectural trends and aesthetic choices suggest that opportunities may yet exist for an expanded industry in the future.

Renewed efforts are being made to promote and evaluate potential stone resources throughout New Brunswick. Because most of the Province's former quarry sites were established relatively close to populated centers or near tidewater (Figure 2), many inland areas have not been evaluated adequately for their dimension stone potential. A few years ago, the Minerals and Energy Division of New Brunswick's Department of Natural Resources and Energy embarked on some preliminary initiatives to evaluate the Province's dimension stone potential. New Brunswick's historic role as a stone producer was documented (Martin 1990a and 1990b). As well, an inventory of both active and long-abandoned quarries and selected undeveloped stone resources with presumed aesthetic appeal have been

undertaken (Three-D GeoConsultants Limited 1989a, 1989b and 1991; Webb 1992). Given the precursory nature and technical limitations of this work, more detailed geotechnical evaluation is required to provide greater confidence in establishing new quarries and reviving former sites.

In New Brunswick, the tenure of stone used for building purposes generally belongs to individual landowners and must be acquired through land purchase, lease or other mutually agreeable instruments. On government-controlled (Crown) lands, a permitting and leasing arrangement enables access to the resource for evaluation and subsequent development.

### **Current Status**

Several firms are active in quarrying and fabricating local as well as imported rough blocks of stone, shaping them into a variety of products including monuments, streetscaping and landscaping stone, and construction stone for new and aging buildings. Companies mainly produce specific stone products on a demand basis. They are grouped into three main categories:

- PROCESSING IMPORTED AND NEW BRUNSWICK ROUGH STONE: Nelson Monuments Ltd. of Sussex; Smith Cut Stone & Quarries Ltd. of Shediac; Maritime Stone Works Inc. of Scoudouc; and Bastarache Stone Quarrie Ltd. near Notre-Dame.
- PROCESSING IMPORTED AND SOME LOCAL ROUGH STONE: Brunswick Monuments Ltd. near Grand Falls.
- IMPORTED FINISHED MONUMENTS WITH ON-SITE ENGRAVING: Not included here.

*Nelson Monuments Ltd.* is the largest monument and stone processing facility in Atlantic Canada, operating granite quarries at Hampstead in south-central New Brunswick and at Vermillion Bay in Ontario. In New Brunswick, a medium-grained, pinkish grey granite, marketed under the name "Coral Dawn", is extracted at Hampstead using a flame-jet technology. Nelson's Hampstead site, New Brunswick's largest block granite quarry, provides hundreds of cubic metres of granite annually to the company's Sussex processing facility, 60 km to the east, where it is shaped into monument bases, streetscaping stone, curbing, bridge stone, veneer stone and other cut-stone products.

The Nelson operation also imports granite from other countries, including South Africa, India, Norway, Finland, and the United States. The company's Sussex processing facility is equipped with several computerized diamond saws of various sizes, polishing tables and lettering facilities including computer-assisted drafting equipment. About half of Nelson's 65 employs work in New Brunswick.

*Smith Cut Stone & Quarries Ltd.* is the oldest operating stone company in New Brunswick. Since the 1860s, the company has produced building stone from its

own olive green sandstone quarry near Shediac, about 25 km northeast of Moncton, as well as red and grey sandstone from other sources. The company has supplied and installed a variety of stone products for many impressive structures throughout New Brunswick (such as the New Brunswick Museum in the City of Saint John) and parts of Nova Scotia.

*Maritime Stone Works Inc.* supplies light buff, beige and brown sandstone for both new construction and restoration markets. The company has acquired sandstone quarry rights to properties in southeastern New Brunswick (Figure 1), near the City of Moncton. Millions of tonnes of sandstone were reported to have been removed from these quarries during the late 1800s and used locally or shipped to locations all along the eastern seaboard of North America. Examples in New York City include the prestigious Dakota Building and much of the sandstone used in Central Park. Substantial additional resources have been reported.

The company produces blocks, slabs, and ashlar cut to size, custom carved stone pieces and a host of other products on demand. Stone products have been distributed to markets throughout Canada and the United States with limited shipments to Europe.

*Bastarache Stone Quarrie Ltd.* operates a small sandstone quarry in southeastern New Brunswick, about 25 km north of the City of Moncton. Specializing in flagstone "veneer", the company has supplied material used as wall and patio stone, cut stone for windowsills and fireplace hearths as well as general building stone.

*Brunswick Monuments Ltd.* operates the only stone finishing facility in northwestern New Brunswick. In business since the early 1970s, the company generally imports granite as rough blocks mainly from Quebec, Ontario, South Africa, and the United States, processing them into monuments and related products.

### ***Development Opportunities***

New Brunswick's diverse geology and history of successful stone production are an indication that dimensional and related architectural stone have potential as prominent mineral resource commodities. Many areas throughout the Province have attractive stone. However, expansion into the stone products industry will depend on careful assessment of potential resources and anticipated products.

For the most part, granite exposures in New Brunswick display complex joint patterns, and moderate to intense fracturing. The persistence of such features at depth is not well studied. The distribution of imperfections and textural variations in some deposits (such as xenoliths) can often vary over short distances. Such characteristics place certain constraints on the size and quality of various granite products and are often synonymous with high waste-to-product ratios. In general,



the development of a granite quarry as a viable source of large panels or veneer is not likely in New Brunswick. The marketing of quarry waste material would be necessary to make such an enterprise feasible.

Opportunities may exist for supplying several specialty products with unique colour and texture that require limited capital investment in expensive production equipment. Potential market development may first be of a local or domestic nature by producing ashlar for residential and commercial cladding, landscaping and streetscaping stone utilizing fieldstone, sandstone flagstone, processed decorative aggregate, natural cobblestone and boulders. These types of simple products, made available in a wide range of colors, textures and sizes on relatively short notice and at reasonable costs, are largely underdeveloped in the region. Such materials also have the potential to become part of a broader marketing strategy including the eastern Canada, northeastern United States, and other destinations.

Throughout northeastern North America opportunities may also exist in the restoration and renovation of many structures originally constructed of New Brunswick stone. The importance and value-added nature of this potential market should not be underrated.

Social awareness and attitudes toward the disposal of manufactured waste materials have gone through some significant changes over the last few decades. In some instances, what would have been considered waste or a potential liability might now be considered a resource of opportunity and value. This proposed shift in direction could form the basis of a more dynamic stone industry in New Brunswick. Many dormant sites in the Province have large piles of stone grout that were considered to be waste rock when it was quarried. Many tonnes of quarried material, like red granite blocks left as waste rock over 80 years ago (Figure 3a), are seen as a source of attractive, useful and affordable stone products like the decorative aggregate shown in Figure 3b. At an abandoned sandstone quarry (Figure 4a), flagstone material was extracted and pushed aside a century ago because large blocks were considered the prize. It now has a long list of potential applications ranging from a natural cladding material to stone treatments directed at landscaping and streetscaping designs (Figure 4b). Oversized aggregate materials, such as natural cobblestones and boulders that are often left behind at sand and gravel operations following the screening and removal of construction-grade materials, are seen as marketable stone resources. Some would classify such materials as having no apparent value while others might consider them an ignored or overlooked development opportunity.

## **Conclusion**

New Brunswick's dimension stone industry has a well-documented history of production that dates back to the mid-19<sup>th</sup> century. Renewed interest in stone as a viable alternative building and decorative material combined with innovative processing technologies and the Province's diverse geology are seen as assets

leading to an expanded stone industry. In addition, opportunities in restoration and renovation and the potential utilization of waste rock should continue to spark interest in New Brunswick stone.

Although preliminary efforts to re-evaluate former quarry sites and uncover potential exploration targets have been initiated on a regional scale, more detailed geotechnical evaluation of the Province's stone assets is clearly required. This approach should provide a better level of confidence in regard to the types of products New Brunswick's stone resources are capable of sustaining.

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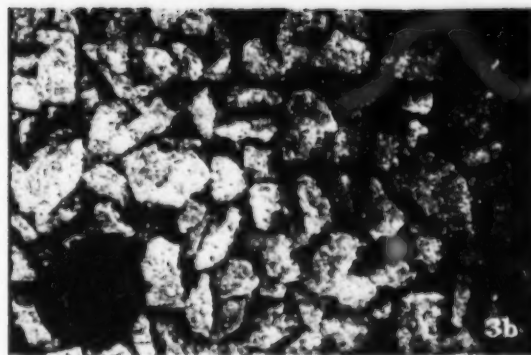
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*Figure 3a and 3b. Blocks of red granite, excavated many years ago and left as waste near St. George in southwestern New Brunswick, offer a potential opportunity for several stone product lines including processed decorative aggregate shown in Figure 3b.*



*Figure 4a and 4b. Sandstone flagstone, quarried over a century ago and pushed aside at this abandoned site in southeastern New Brunswick (Figure 4a) has a multitude of practical applications like the stairway and flower bed shown in Figure 4b.*

